MICHIGAN DEPARTMENT OF COMMUNITY HEALTH

EMERGENCY MEDICAL SERVICES & TRAUMA SYSTEMS COMMUNICATIONS SYSTEM

MEDCOM REQUIREMENTS

June 2005

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INTRODUCTION

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INTRODUCTION

The Department realizes that changes in technology make available new capabilities for communications. In accordance with these new technological developments, the Department has developed requirements for EMS communication systems. The following are requirements for EMS communication systems. All life support agencies and hospitals must comply with these requirements unless they have an approved Department waiver.

Compliance with MEDCOM VHF or UHF mobile radio requirements is a condition for licensure of ambulances in the State of Michigan. These requirements have been carefully developed with the objective of providing for a universally effective statewide emergency medical services communications capability at minimum cost to ambulance service providers.

Narrow banding

Current FCC rules have set a deadline of 2013 for all use of VHF and UHF public safety radio systems to convert to "narrowband" operations.

Essentially, this means that existing channels will be "cut in half" to allow nearly twice as many available channels as now exist. No channels or frequencies will be lost as a result of this process. Most, *but not all*, equipment manufactured in the past few years is capable of narrowband operation.

EMS agencies are advised to inventory their radio equipment and plan for this transition in their budgeting and purchasing of new radios. Questions may be directed to the Department's EMS Communications Consultant.

The Department will coordinate the transition of the Statewide HERN radio system (155.34 MHz) at a future date. Ample notice will be provided to assure an orderly, Statewide transition of that system to narrowband operation.

Other locally operated VHF and UHF MEDCOM systems may transition at any time to narrowband operation, *with notice to the Department*.

SECTION ONE

LIFE SUPPORT AGENCY AND HOSPITAL REQUIREMENTS FOR PATIENT COMMUNICATIONS

AND

LIFE SUPPORT AGENCY DISPATCH REQUIREMENTS

June 2005

Section 1. Ground Ambulance and Hospital Requirements for Primary Patient Communications

A. Agency/Vehicle Requirements (ALS, LALS, BLS)

1. Advanced Life Support, Limited Advanced Life Support, Basic Life Support

a. Radio communications system must meet local communication requirements of the medical control authority.

b. All basic, limited, and advanced life support vehicles must have vehicle to hospital voice communications capable of transmitting and receiving voice communications in 90% of the agencies primary geographic service area 90% of the time. Transporting vehicles must locate communication equipment so that it is functional and usable from the patient compartment. (The 155.340 MHZ HEAR/HERN frequency may be used to meet this requirement.)

c. All basic, limited, and advanced life support vehicles shall be equipped to communicate on 155.34 MHz. This frequency shall facilitate voice communications for: A) medical direction and control related to patient care and transport; B) Contact with hospitals and department-approved facilities receiving emergency patients outside of the life support agencies primary geographic service area; C) Disasters; and D) Primary system failure backup. (PL codes are available by contacting EMS Communications Consultant)

Vehicles licensed and in service prior to April 2004 and which were not equipped for operation on 155.34 MHz during that time period are exempt from the above requirement. All newly licensed or replacement vehicles at the basic, limited, and advanced life support levels must be equipped to communicate on 155.34 MHz.

Effective January, 2007, all basic, limited and advanced life support vehicles shall be equipped for operation on 155.355 MHz. This frequency is designed for on-scene coordination purposes, and is restricted to mobile and portable use only. Operations on this frequency will utilize a PL code of 210.7 Hz.

d. Life support vehicle radio communication equipment will be configured to allow communication with all hospitals or other department approved facilities receiving emergency patients within its medical control authority; and, with any other such facility to which it transports a patient within other medical control authorities. The department recommends that each mobile radio used in EMS operations in Michigan be configured for operation on all CTCSS tones used on the HEAR / HERN frequency in Michigan. Inter-medical control authority communication issues must be coordinated and resolved through written protocols or agreements between affected medical control authorities.

e. Changes to system communications must be coordinated between hospitals, life support agencies and medical control authorities.

f. Non-public safety shared user communication systems must agree to provide EMS agencies with priority system access or be able to demonstrate system access 99% of the time.

g. Prior to the use of MEDCOM communications equipment by EMS personnel, each life support agency shall provide training to those persons sufficient to assure proper operation of MEDCOM radio components used by that EMS agency.

2. Advanced Life Support, Limited Advanced Life Support – Additional Requirements

a. All Limited Advanced and Advanced Life Support Agencies must provide reliable voice communications from patient side to hospitals and other department-approved facilities receiving emergency patients throughout 90% of the Agency's primary geographic service area 90% of the time without harmful interference. Patient side (scene) communication may be exempted if a Medical Control Authority has adopted a protocol not requiring patient side communication and it has been approved by the Department.

b. Agencies within medical control authorities which have protocols requiring telemetry communication must have reliable telemetry communications throughout 90% of the Agency's primary geographic service area 90% of the time without interference from other life support agencies.

3. 90% Coverage Definition

90% coverage reliability is defined as the capability of the radio system to maintain radio communications at a level of performance equal to or better than Bell System circuit merit grade CM-3 (20dB receiver quieting) 90% of the time between the base station(s) or a cooperating hospital and its portable units, if

applicable, from 90% of all locations within the primary geographical service area assigned to the life support agency.

B. Eligible Emergency Facilities/Hospital Requirements

1. As of September 2005, all communications related to patient care between EMS agencies and hospitals or other department-approved facilities receiving emergency patients shall be recorded electronically and maintained for not less than 60 days. These electronically recorded communications are considered under the Quality Improvement program and will be reviewed under the Medical Control Authority Professional Standards Review Organization (PSRO).

2. Hospitals or other department-approved facilities receiving emergency patients shall be equipped to communicate by voice with all basic, limited, and advanced life support agencies within the medical control authority and in accordance with the local communication requirements of that medical control authority. Each MCA must assure that, within it's medical control region, the radio system(s) used for EMS medical direction communication are configured to provide an audible output of any designated EMS communication channel or talk group at all times, at one or more continuously monitored locations; and, that meets coverage and other technical requirements of these rules. These designated locations providing continuous monitoring of dedicated EMS medical direction communications must be using radio equipment that is not configured for 'scanning' or capable of manually selecting other receiver channels or talk groups.

3. If communication plan allows for primary or secondary use of telephone line, all hospitals or other department approved facilities receiving emergency patients shall have a dedicated phone line with recording capability as outline in #1 above.

4. Hospitals and other department-approved facilities receiving emergency patients shall be equipped to communicate on the HEAR/HERN frequency of 155.340 MHZ. CTCSS (continuous tone coded squelch system) tones will be assigned by the Department and are listed in the current MEDCOM Frequency and CTCSS Tone directory published by the Department.

5. Hospitals and department-approved facilities must meet technical requirements in Section 4.

6. 155.340 MHz shall not be licensed or used for dispatch or "paging" purposes within the State of Michigan. Use of this frequency is reserved for communication regarding direct patient care between EMS personnel and an emergency receiving facility.

7. All speakers shall have an audible output when operator volume control is set to the minimum position.

8. If using telephones for EMS primary or secondary communication, ringers must have an audible output when set to the minimum position.

9. Medical control authorities, at their option, may utilize any other frequency or radio system that meets the requirements of this document. Such systems may include the "Michigan public safety communication system" (MPSCS: the *"state 800 system"*); systems operated by local units of government; or, other frequencies properly licensed through the FCC for EMS or public safety use. Use of commercial (non-public owned) systems must agree in writing to provide priority system access or be able to demonstrate system access 99% of the time. Any additional frequencies or systems used will be in addition to the base requirement of operational capability on 155.34 MHz as outlined in this document.

10. Changes to MCA system communication plans must be coordinated between hospitals, and life support agencies. Notice of plans to make any substantial MCA communication system change must be given to the EMS and Trauma System Section. The Communications Consultation of the EMS & Trauma System Section must be involved in the planning of any proposed communication system changes.

11. Each hospital and department approved facility receiving emergency patients shall provide training to their staff sufficient to assure proper operations of MEDCOM radio components at that facility. Staff shall receive this training prior to any operation of MEDCOM equipment.

C. Back Up Systems

1. All components of the Life Support Agency to Hospital communications system must have a back-up power supply.

2. All equipment shall be equipped with necessary lightning and surge protection devices for all components and circuitry susceptible to damage by lightning and power or telephone control line voltage surges.

D. Southeast Michigan Secondary Frequency

1. 155.400 MHZ is to be utilized as a secondary HEAR/HERN frequency as well as for disaster coordination purposes in the following counties: St. Clair, Macomb, Oakland, Wayne, Monroe, Washtenaw & Livingston. This frequency may not be used for dispatching purposes in those counties.

E. Disaster Communications (Agency and MCA requirements)

1. Each medical control authority shall have a protocol for communications between department-approved facilities receiving emergency patients and life support agencies during disasters.

2. All basic, limited, and advanced life support vehicles, hospitals, and department-approved facilities receiving emergency patients, shall be equipped with radio communication capability on 155.340 MHz.

   Vehicles licensed and in service prior to April 2004 and which were not equipped for operation on 155.34 MHz during that time period are exempt from the above requirement. All newly licensed or replacement vehicles at the basic, limited, and advanced life support levels must be equipped to communicate on 155.34 MHz.

   Effective January, 2007, all basic, limited and advanced life support vehicles shall be equipped for operation on 155.355 MHz. This frequency is designed for on-scene coordination purposes, and is restricted to mobile and portable use only. Operations on this frequency will utilize a pl code of 210.7 Hz.

3. The HEAR/HERN CTCSS tones will be assigned by the Department.

Section 2. <u>Life Support Agency Dispatch Requirements (ALS, LALS, BLS and MFR)</u>

A. All Levels

1. All licensed life support vehicles shall be capable of two-way communications for dispatching and coordination activities. Non-public safety shared-user communication systems must agree to provide EMS agencies with priority system access or be able to demonstrate system access 99% of the time.

2. All licensed life support vehicles will be capable of communications in compliance with their local medical control authority's disaster/communication protocol.

3. The effective radiated power of any mobile transmitter and antenna system shall be sufficient to contact dispatch 90% of the time in 90% of the area and shall be no more than that required for satisfactory operations commensurate with the size of the area to be served and local conditions which affect radio transmission and reception.

4. Effective September 2005, each life support agency shall assure the electronic recording of all requests for emergency medical services and dispatch communication.

5. 155.340 MHz shall not be licensed or used for dispatch or "paging" purposes within the State of Michigan. Use of this frequency is reserved for communication regarding direct patient care between EMS personnel and an emergency receiving facility.

Section 3. Waivers

The department may grant waivers of these standards when it can be demonstrated that compliance with these standards will result in a significant medical or economic impact to the public health safety and welfare.

Section 4. National Interoperability Channels

The Federal Communications Commission has designated channels in each of the major Public Safety radio bands for exclusive use as Interoperability or Mutual Aid channels. All are for use only in a "narrowband" mode.

Consistent with this FCC action, the Department encourages all EMS agencies to add the following frequencies to their mobile and portable radio equipment, if narrowband capable:

VHF

155.7525	VCALL
151.1375	VTAC 1
154.4525	VTAC 2
158.7375	VTAC 3
159.4725	VTAC 4

UHF[1,2]

453.2125	UCALL
453.4625	UTAC 1
453.7125	UTAC 2
453.8625	UTAC 3

800 MHz[2,3]

866.0125	ICALL
866.5125	ITAC 1
867.0125	ITAC 2
867.5125	ITAC 3
868.0125	ITAC 4

[1]Applicable only if using UHF frequencies currently.
[2]Available for use "simplex" and in repeater mode with proper offsets. Selected MPSCS towers are operational on the ICALL frequency using PL 156.7 Hz.
[3]Applicable only if using 800 MHz frequencies currently.

Use of the above channels does not require additional licensing if used only in a mobile or portable environment, and if the user is already licensed for use of other Public Safety radio channels. The FCC considers use of these channels, for interoperability purposes, “Primary” over other co and adjacent channel users.

SECTION TWO

Medcom Frequency & CTCSS Requirements

June 2005

Michigan Emergency Medical Services Communications System

MEDCOM Frequency and CTCSS Requirements

The Department has the responsibility under FCC rules (47 CFR §90.20) to coordinate use of frequencies specified in the rules as reserved for "Emergency Medical" use and listed in FCC frequency allocation tables with the designation "PM". Emergency Medical frequencies will be approved by the Department for use in the State of Michigan as follows:

VHF Channels

150.775 MHz	Mobile and portable use only; vehicular repeaters
150.790 MHz	Mobile and Portable use only; vehicular repeaters
150.805 MHz	Mobile and portable use only; vehicular repeaters
155.325 MHz	Dispatch of EMS resources, base and mobile use
155.34 MHz	Reserved for communications between hospitals (and other facilities equipped for receiving emergency patients) and EMS personnel, for the purpose of coordination and instruction regarding care and transport of patients in the rendition or delivery of emergency medical services. Dispatch and paging operations are not allowed on this frequency. (Commonly known as the HEAR or HERN channel)
155.355 MHz	Mobile and portable only; On-Scene Coordination of EMS resources; mutual aid; tactical operations
155.385MHz	Primary use: Rotary Wing Ambulance Dispatch Secondary use: regional coordination between hospitals, health departments, and Emergency Operating Centers during times of disaster and large multi-casualty incidents
155.400 MHz	Within the SE Michigan counties of St. Clair, Macomb, Oakland, Wayne, Monroe, Washtenaw and Livingston, this frequency is reserved for disaster coordination purposes and as a secondary HEAR/HERN channel. No dispatch or paging operations will be allowed in SE Michigan. Outside SE Michigan, the frequency is available for dispatch of EMS resources, base and mobile

"Emergency Medical" (PM) Channels offset 7.5 KHz from those listed above will be approved for use as indicated for the "PM" channel immediately below it.

Notes:

- The Department recommends that each mobile VHF radio used in EMS operations in Michigan be configured for operation on all CTCSS tones used on the HEAR / HERN frequency in Michigan. An up-to-date directory is available from the Department's Communications Consultant.

- Base stations transmitting on 155.34 MHz must transmit using a "PL" code of 97.4 Hz. Receive "PL" will be as individually assigned by the Department. It is recommended that mobile and portable units use no "PL" (carrier squelch) on receive to prevent unintentional interference on this frequency.

- Stations transmitting on 155.400 MHz within 100 miles of the SE Michigan counties listed above must transmit using a "PL" code of 97.4 Hz or other "PL" as approved by the Department to avoid interference to SE Michigan HEAR/HERN operations.

- Operations currently FCC licensed and in operation as of the implementation date of these requirements may continue existing uses of these frequencies.

UHF Channels

453.075 MHz Base or Mobile, dispatch of EMS resources

453.125 MHz Base or Mobile, dispatch of EMS resources

453.175 MHz Base or Mobile, dispatch of EMS resources

- Narrowband "offset" PM channels adjacent to the above frequencies will be approved for similar EMS dispatch uses, with appropriate emission limits per FCC rules.

- Operations currently FCC licensed and in operation as of the implementation date of these requirements may continue existing uses of these frequencies.

UHF "MED" Channels

The following channels are to be used as designated by the FCC for EMS dispatch and resource coordination (MED 9 and 10); and, medical direction communications between hospitals (and other Department approved facilities equipped for receiving emergency patients) and EMS units and personnel (MED 1 – 8).

Channels and CTCSS codes will be assigned by the Department. The Department's Communications Consultant should be involved in any planning for new or changed UHF MED Channel operations.

MEDCOM Pre-Coordinated MED Channel Selection Scheme

In order to minimize the possibilities of co-channel interference between Medical Control communication systems, the Department will designate a channel selection scheme for those areas using multiple UHF channels.

Definitions

1. Primary Selection: Channels designated for primary selection should be assigned as a first choice whenever available.

2. Secondary Selection: Channels designated for secondary selection should be assigned when the primary channel is in full use according to local protocol.

3. Tertiary Selection: Channels designated for tertiary selections should only be assigned when the primary and secondary selections are fully utilized. Operation on tertiary selections should be limited to the minimum possible time required.

Frequency Band: UHF

The FCC has designated the following primary med channels for communications between life support agencies and hospitals. The Department will designate the channels and CTCSS tones to be used in each geographic area.

MEDCOM Channel Designator	MEDCOM Channel Function	Frequency	
		Base	Mobile
Med 1 - 8	Prehospital communications between medical facilities and life support agencies. (1) (2)	463.000	468.00
		463.025	468.025
		463.050	468.050
		463.075	468.075
		463.100	468.100
		463.125	468.125
		463.150	468.150
		463.175	468.175

Med 11 - 83	The FCC has provided an additional 24 channels (narrowband) which may be available and will need to be coordinated by the department.	463.00625 463.0125 463.01575 463.03125 463.0375 463.04375 463.05625 463.0625 463.06975 463.08125 463.0875 463.09375 463.10625 463.1125 463.11875 463.13125 463.1375 463.14375 463.15825 463.1625 463.16875 463.18125 463.1875 463.18375	468.00625 468.0125 468.01575 468.03125 468.0375 468.04375 468.05625 468.0625 468.06975 468.08125 468.0875 468.09375 468.10625 468.1125 468.11875 468.13125 468.1375 468.14375 468.15825 468.1625 468.16875 468.18125 468.1875 468.18375

Frequency Band: UHF

These frequencies are primarily authorized for use in the dispatch of medical care vehicles and personnel for the rendition or delivery of medical services. These frequencies may also be assigned for intra-system and inter-system mutual assistance purposes. Specific frequencies and CTCSS tones will be as assigned by the Department.

MEDCOM Channel Designator	MEDCOM Channel Function	Frequency	
Med 9	Emergency resource coordination and centralized dispatching of emergency medical care vehicles and personnel for the rendition or delivery of medical services.	Base and mobile (megahertz) 462.950	Mobile only 467.950

Med 10	Local and private dispatch and coordination of emergency medical care vehicles and personnel for the rendition or delivery of medical services. (2)	462.975	467.975
Med 91, 92, 93, 101, 102, 103	FCC has provided additional channels (narrowband) which may be available and will need to be coordinated by the department.	462.95625 462.9625 462.96675 462.96125 462.9675 462.99375	467.95625 467.9625 467.96675 467.96125 467.9675 467.99375

UHF - CTCSS TONE FREQUENCIES

As noted above, all CTCSS (PL) tone assignments on Emergency Medical frequencies will be coordinated by the Department.

SECTION THREE

Radio Communications Equipment Requirements For Air Ambulances and Aircraft Transport Vehicles

June 2005

RADIO COMMUNICATIONS EQUIPMENT REQUIREMENTS FOR AIR AMBULANCES AND AIRCRAFT TRANSPORT VEHICLES

Definitions

1. Air Ambulance Means a rotary aircraft that is primarily used or designated as available to provide transportation and basic life support, limited advanced life support, or advanced life support.

2. Aircraft Transport Vehicle - Means an aircraft that is primarily used or designated as available to provide patient transportation between health facilities and that is capable of providing patient care according to orders issued by the patient's physician.

AIR AMBULANCES

1. Pre-hospital communications are permissible on the UHF "MED" channels, EMRS frequencies, and appropriate aircraft frequencies. Unless no other communication frequencies or methods are available, air ambulances must avoid transmitting on 155.340 MHz.

2. Cellular telephones may not be operated in an Air Ambulance. (FCC rule 47CFR 22.925)

AIRCRAFT TRANSPORT VEHICLES

1. Vehicles in this class are to use normal aircraft frequencies. Unless no other communication frequencies or methods are available, communications on 155.34 MHz are prohibited.

1. Cellular telephones may not be operated in an Air Transport vehicle. (FCC rule 47CFR 22.925)

SECTION FOUR

VHF and UHF Base Station Equipment Requirements
for:
Hospitals
MEDCOM Radio Coordination Districts
MEDCOM Spectrum Management Facilities
and
any other EMRS Fixed Base Radio Facility
other than Ambulance Dispatch Operations

June 2005

MEDCOM VHF BASE STATION EQUIPMENT REQUIREMENTS

A. Base Station

1. The station will be equipped for operation on 155.340 Mhz.

    a. CTCSS tones are to be assigned by the Department and are listed in the MEDCOM Frequency and CTCSS Directory published by the Department.

2. Transmitter power output: The effective radiated power (ERP) shall be no more than the minimum required for satisfactory mobile operations. Maximum VHF hospital transmitter power limits will be governed by a dividing line that follows US10 from Ludington to Reed City, north on US 131 to Cadillac, and east on M55 to East Tawas.

    a. Hospital VHF transmitter power south of this line shall not exceed 50 watts or emit more than 150 watts ERP from the antenna, whichever is less.

    b. Hospital VHF transmitter power on or north of this line can be up to the maximum allowed by the Federal Communications Commission.

2. The radio system shall not be equipped for page or alert page tone signaling on 155.340 Mhz.

3. No telemetry may be sent over 155.340 Mhz.

4. Station or transmitter license identification on 155.340 Mhz must be by voice. No automatic morse code identification will be allowed.

B. Antenna Height

1. The antenna height shall be no more than the minimum required for satisfactory mobile operations.

    a. Antenna height south of the line defined in paragraph A2 will not exceed 125 feet above ground level or 200 feet above average terrain, whichever is less.

    b. Antenna height on or north of the line defined in paragraph A2 will not exceed 200 feet above ground level or 300 feet above average terrain, whichever is less.

MEDCOM UHF BASE STATION EQUIPMENT REQUIREMENTS

A. Transmitter

1. The transmitter will be equipped for voice operation on UHF "MED" channels assigned by the Department.

2. Transmitter power output: The effective radiated power (ERP) shall be no more than the minimum required for satisfactory mobile operations. Transmitters may not issue more than 100 watts.

3. Each transmitter shall be equipped to operate on one or more 463 MHZ MED channels assigned to the MRCD UHF system in accordance with the MEDCOM Frequency plan. Transmitters must be continuous duty rated, capable of being keyed 100% of the time with no degradation of power output.

B. Antenna Height

1. The antenna height shall be no more than the minimum required for satisfactory mobile operations.

2. Satisfactory mobile operations are defined as the capability of the radio system to enable mobile to base communications with a minimum coverage reliability of 90% of a Medical Control Authority's designated service area, 90% of the time.

C. CTCSS Tones

All base station transmitters and receivers shall be equipped with the CTCSS Tone assigned by the Department.

D. Repeater Operation

Fixed location repeater operation is allowed on all MED channels.

Appendix A

MICHIGAN EMERGENCY MEDICAL SERVICES COMMUNICATION SYSTEM VEHICLE DESIGNATOR PLAN

It is the Department's desire to have all EMS agencies comply with the state numbering plan. To encourage uniformity for transport vehicles and to lessen confusion for hospital personnel, we encourage all services to adopt the plan. All vehicles would have a two digit by single letter by two or three digit designator. The first two digits identify the vehicle's county of origin listed on Table #1 below. The letter denotes the vehicle's Level of Care listed on Table #2 below, and the last two or three digits are the individual vehicle's identification number. For example, vehicle 41C11 or "Forty-one Charlie Eleven" would be Supervisory Vehicle Eleven from Kent County. All vehicle numbers are to be assigned by the service's local Medical Control Authority.

Table #1
COUNTY NUMBER

01 Alcona	02 Alger	03 Allegan	04 Alpena	05 Antrim	06 Arenac
07 Baraga	08 Barry	09 Bay	10 Benzie	11 Berrien	12 Branch
13 Calhoun	14 Cass	15 Charlevoix	16 Cheboygan	17 Chippewa	18 Clare
19 Clinton	20 Crawford	21 Delta	22 Dickinson	23 Eaton	24 Emmet
25 Genessee	26 Gladwin	27 Gogebic	28 Grand Traverse	29 Gratiot	30 Hillsdale
31 Houghton	32 Huron	33 Ingham	34 Ionia	35 Iosco	36 Iron
37 Isabella	38 Jackson	39 Kalamazoo	40 Kalkaska	41 Kent	42 Keweenaw
43 Lake	44 Lapeer	45 Leelanau	46 Lenawee	47 Livingston	48 Luce
49 Mackinaw	50 Macomb	51 Manistee	52 Marquette	53 Mason	54 Mecosta
55 Menominee	56 Midland	57 Missaukee	58 Monroe	59 Montcalm	60 Montmorency
61 Muskegon	62 Newaygo	63 Oakland	64 Oceana	65 Ogemaw	66 Ontonogan
67 Osceola	68 Oscoda	69 Otsego	70 Ottawa	71 Presque Isle	72 Roscommon
73 Saginaw	74 St. Clair	75 St. Joseph	76 Sanilac	77 Schoolcraft	78 Shiawassee
79 Tuscola	80 Van Buren	81 Washtenaw	82 Wayne	83 Wexford	84 Detroit/East
90 Ohio	91 Indiana	92 Wisconsin	99 Ontario		

Table #2

LEVEL OF CARE

A ALPHA	Advanced Life Support Ambulance
B BRAVO	Basic Life Support Ambulance
C CHARLIE	Supervisory Vehicle
D DELTA	Physician Vehicle
E ECHO	Advanced Life Support Non-Transport Vehicle
H HOTEL	Air Ambulance or Helicopter
L LIMA	Limited Advanced Life Support Ambulance
M MIKE	Limited Advanced Life Support Non-Transport Vehicle
N NOVEMBER	Neonatal Unit
R ROMEO	Rescue, Extrication, or Medical First Responder Unit
T TANGO	Basic Life Support Non-Transport Vehicle

Appendix B

Ambulance to Hospital Radio Communications System
Application Requirements
For
Medical Control Authorities

The following procedures must be followed when:

- a Medical Control Authority upgrades to provide LALS or ALS
- an existing Medical Control Authority changes the infrastructure of its communication system that provides ambulance to hospital communications.
- a change is made in an existing communications system that results in an inability of an agency or hospital to communicate with each other.

I. Communications System Design/Requirements

The EMS and Trauma Systems Section must approve all ambulance to hospital communication system design parameters

A. After approval has been granted, all changes in system design must be approved by the EMS and Trauma Systems Section, or its designee.
B. All proposed communication systems must demonstrate to the Department that the system meets the EMS and Trauma Systems Section 90% coverage guidelines (see Section One, Page 2: 90% coverage). Demonstration of compliance can either be by computer generated range projections or by testing on a comparably configured radio system.

II. Procedure

The following outlines a typical application process. Not all steps may be required and additional steps may be required depending on the circumstances:

A. Medical Control Meetings
B. Pre Application meeting
C. Revisions of plan (if necessary)
D. Submission of final plan
E. Review of plan by EMS and Trauma Systems Section
F. Site Inspection by EMS Division
G. System revision(s) (if necessary)
H. Re-inspection (if necessary)
I. Department Approval of final plan

III. Medical Control Meetings

A. Prior to the pre application meeting, the Medical Control Authority shall meet with all the involved hospitals and agencies in its area to discuss and agree on the proposed communications systems.
B. It is recommended that the Department's Communications consultant be a part of these discussions.

IV. Pre-Application Meeting

A. Prior to completing the radio system design, and as early as possible, the Medical Control Authority should contact the EMS and Trauma Systems Section to arrange a pre-application meeting.
B. The pre-application meeting is used to:
    1. coordinate the system design
    2. identify unresolved issues
    3. ensure that the design meets state requirements
C. The persons that should attend this meeting include (but are not limited to):
    1. EMS Coordinator for the MCA
    2. Persons involved in the system design
    3. Anyone involved in providing and/or procuring radio equipment for the proposed system

V. Site Inspection

A. Once steps A-D (in section II above) have been completed, the EMS and Trauma Systems Section, or its designee, will conduct an inspection at all principal communications sites within the system.
B. The EMS and Trauma Systems Section will contact the applicant Medical Control Authority, and provide adequate notice, to facilitate test arrangements.
C. The MCA will be required to demonstrate various system capabilities to show compliance with the proposed system plan.

VI. Communications System approval

A. Approval of the communication system will be based on the system's compliance with:
    1. Department requirements for communications systems
    2. Local and regional communications plans
    3. The Rules and Regulations of the Federal Communications Commission.
    4. The appropriate radio coverage tests performed by the EMS and Trauma Systems Section or its designee.
    5. All effected parties.

Ambulance to Hospital Radio Communications System
Application Requirements
For
EMS Agencies

The following procedures must be followed when:

- a new EMS agency begins service
- an existing EMS agency upgrades to a higher level of care
- an existing EMS agency makes a change to its existing communications system that results in an inability of an agency or hospital to communicate with each other.
- an existing EMS agency begins service in a new Medical Control Authority area.

I. Communications System Design/Requirements

A. The EMS and Trauma Systems Section must approve all ambulance to hospital communication system design parameters

B. After approval has been granted, any future changes in system design must be approved by the EMS and Trauma Systems Section, or its designee.

C. All proposed communication systems must demonstrate that the system meets the EMS and Trauma Systems Section 90% coverage guidelines (see Section One, Page 2: 90% coverage definition). Demonstration of compliance can either be by computer generated range projections or by testing on a comparably configured radio system.

II. Procedure

The following outlines a typical application process. Not all steps may be required and additional steps may be required depending on the circumstances:

A. Medical Control Meeting(s)
B. Pre Application meeting
C. Revision(s) of plan (if necessary)
D. Submission of final plan
E. Review of plan by EMS and Trauma Systems Section
F. Site Inspection by EMS and Trauma Systems Section
G. System revision(s) (if necessary)
H. Re-inspection (if necessary)
I. Department Approval of final plan

III. Medical Control Meetings

A. Prior to the pre application meeting, the agency must meet with the Medical Control Authority to discuss its existing communication system and the equipment necessary for the agency to be able to participate in ambulance to hospital communications.

B. If the discussion involves changing system design or implementing a new system, it is recommended that the person responsible for communications issues from the EMS and Trauma Systems Section be a part of these discussions.

IV. Steps B - I

If the agency will utilize an approved existing communications system and has completed step III A. the process is complete.

A. If the agency will utilize a new communications system, the Medical Control Authority and the agency must follow the MEDCOM MCA application requirements.

APPENDIX C

PL CODES

Current listing of PL Codes is available by contacting EMS Communication Consultant at 517/285-6678 or e-mail emsradio@core.com